

Yulin Wang

Ph.D. Student, Tsinghua University

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Education

Department of Automation, Tsinghua University

Ph.D. Student in Pattern Recognition and Machine Learning

2019 – 2025 (expected)

- Advisor: Prof. Cheng Wu and Prof. Gao Huang.

School of Automation Science and Electrical Engineering, Beihang University

B.Eng. in Automation

2015 – 2019

- GPA **Top 1/231**.
- Awarded “**Shen Yuan**” Medal (沈元奖章) by Beihang Univ. (**Top 10** of 18,000+ undergraduate students).

Research Experience

Berkeley Deep Drive, University of California, Berkeley

Research Intern

2018

- Advisor: Dr. Ching-Yao Chan.

Lab of Intelligent Manufacturing, Beihang University

Research Intern

2017 – 2018

- Advisor: Prof. Fei Tao.

Publications

Yulin Wang has published a number of works in top-tier conferences & journals in the fields of machine learning and computer vision, including **TPAMI** (3), **NeurIPS** (3), **ICLR** (1), **ICCV** (6), **CVPR** (4), and **ECCV** (1). Two of his papers were selected for “**Oral Presentation**” (acceptance rate: 2-4%) by ICCV and CVPR, respectively. He has collected **more than 1,200 citations** according to **Google Scholar**. In addition, he has actively released the code for his published papers, and has received **more than 1.2k stars** on **GitHub**. The detailed paper list is presented in the following.

I. Selected Publications – Peer-reviewed Journal Papers

- [1] Gao Huang*, Yulin Wang*, Kangchen Lv, Haojun Jiang, Wenhui Huang, Pengfei Qi, Shiji Song
(**co-first author with my advisor**)
Glance and Focus Networks for Dynamic Visual Recognition
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1, IF=23.6), 2023
- [2] Yulin Wang, Gao Huang, Shiji Song, Xuran Pan, Yitong Xia, Cheng Wu
Regularizing Deep Networks with Semantic Data Augmentation
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1, IF=23.6), 2022
- [3] Yizeng Han, Gao Huang, Shiji Song, Le Yang, Honghui Wang, Yulin Wang
Dynamic Neural Networks: A Survey
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1, IF=23.6), 2022
- [4] Yulin Wang, Rui Huang, Gao Huang, Shiji Song, Cheng Wu
Collaborative Learning with Corrupted Labels
Neural Networks (NN, Q1, IF=7.8), 2020

- [5] **Yulin Wang**, Yongping Zhang, Fei Tao, Tingyu Chen, Ying Cheng, Shunkun Yang
Logistics-aware Manufacturing Service Collaboration Optimisation towards Industrial Internet Platform
International Journal of Production Research (IJPR, Q1, IF=9.2), 2019

II. Selected Publications – Peer-reviewed Conference Papers

- [6] **Yulin Wang**, Yang Yue, Rui Lu, Tianjiao Liu, Zhao Zhong, Shiji Song, Gao Huang
EfficientTrain: Exploring Generalized Curriculum Learning for Training Visual Backbones
IEEE/CVF International Conference on Computer Vision (ICCV), 2023
- [7] Zhanlin Ni*, **Yulin Wang***, Jiangwei Yu, Haojun Jiang, Yue Cao, Gao Huang
(*co-first author*)
Deep Incubation: Training Large Models by Divide-and-Conquering
IEEE/CVF International Conference on Computer Vision (ICCV), 2023
- [8] **Yulin Wang**, Yang Yue, Xinhong Xu, Ali Hassani, Victor Kulikov, Nikita Orlov, Shiji Song, Humphrey Shi, Gao Huang
AdaFocus V3: On Unified Spatial-temporal Dynamic Video Recognition
European Conference on Computer Vision (ECCV), 2022
- [9] **Yulin Wang**, Yang Yue, Yuanze Lin, Haojun Jiang, Zihang Lai, Victor Kulikov, Nikita Orlov, Humphrey Shi, Gao Huang
AdaFocus V2: End-to-End Training of Spatial Dynamic Networks for Video Recognition
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [10] **Yulin Wang**, Rui Huang, Shiji Song, Zeyi Huang, Gao Huang
Not All Images are Worth 16x16 Words: Dynamic Transformers for Efficient Image Recognition
Advances in Neural Information Processing Systems (NeurIPS), 2021
- [11] **Yulin Wang**, Zhaoxi Chen, Haojun Jiang, Shiji Song, Yizeng Han, Gao Huang
Adaptive Focus for Efficient Video Recognition
IEEE/CVF International Conference on Computer Vision (ICCV Oral), 2021
- [12] **Yulin Wang**, Zhanlin Ni, Shiji Song, Le Yang, Gao Huang
Revisiting Locally Supervised Learning: an Alternative to End-to-end Training
International Conference on Learning Representations (ICLR), 2021
- [13] Shuang Li, Mixue Xie, Kaixiong Gong, Chi Harold Liu, **Yulin Wang**, Wei Li
Transferable Semantic Augmentation for Domain Adaptation
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR Oral), 2021
- [14] **Yulin Wang**, Kangchen Lv, Rui Huang, Shiji Song, Le Yang, Gao Huang
Glance and Focus: a Dynamic Approach to Reducing Spatial Redundancy in Image Classification
Advances in Neural Information Processing Systems (NeurIPS), 2020
- [15] **Yulin Wang**, Xuran Pan, Shiji Song, Hong Zhang, Cheng Wu, Gao Huang
Implicit Semantic Data Augmentation for Deep Networks
Advances in Neural Information Processing Systems (NeurIPS), 2019

III. Full Publication List

- [16] Ziwei Zheng, Le Yang, **Yulin Wang**, Miao Zhang, Lijun He, Gao Huang, Fan Li
Dynamic Spatial Focus for Efficient Compressed Video Action Recognition
IEEE Transactions on Circuits and Systems for Video Technology (TCSVT, Q1, IF=8.4), 2023

- [17] **Yulin Wang**, Yizeng Han, Chaofei Wang, Shiji Song, Qi Tian, Gao Huang
Computationally Efficient Deep Learning for Computer Vision: A Survey
Cybernetics and Intelligence (sponsored by the Department of Automation, Tsinghua University – 清华大学自动化系主办), 2023
- [18] **Yulin Wang**, Jiayi Guo, Jiangshan Wang, Cheng Wu, Shiji Song, Gao Huang
Meta-Semi: A Meta-Learning Approach for Semi-Supervised Learning
CAAI Artificial Intelligence Research (sponsored by CAAI – 中国人工智能学会主办), 2022
- [19] Yizeng Han, Dongchen Han, Zeyu Liu, **Yulin Wang**, Xuran Pan, Yifan Pu, Chao Deng, Junlan Feng, Shiji Song, Gao Huang
Dynamic Perceiver for Efficient Visual Recognition
IEEE/CVF International Conference on Computer Vision (ICCV), 2023
- [20] Yifan Pu, Yiru Wang, Zhuofan Xia, Yizeng Han, **Yulin Wang**, Weihao Gan, Zidong Wang, Shiji Song, Gao Huang
Adaptive Rotated Convolution for Rotated Object Detection
IEEE/CVF International Conference on Computer Vision (ICCV), 2023
- [21] Wenxuan Ma, Shuang Li, Jinming Zhang, Chi Harold Liu, Jingxuan Kang, **Yulin Wang**, Gao Huang
Borrowing Knowledge From Pre-trained Language Model: a New Data-efficient Visual Learning Paradigm
IEEE/CVF International Conference on Computer Vision (ICCV), 2023
- [22] Wenxuan Ma, Jinming Zhang, Shuang Li, Chi Harold Liu, **Yulin Wang**, Wei Li
Making the Best of Both Worlds: a Domain-Oriented Transformer for Unsupervised Domain Adaptation
ACM International Conference on Multimedia (ACM MM), 2022
- [23] Shuang Li, Kaixiong Gong, Chi Harold Liu, **Yulin Wang**, Feng Qiao, Xinjing Cheng
MetaSAug: Meta Semantic Augmentation for Long-Tailed Visual Recognition
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- [24] Le Yang, Haojun Jiang, Ruojin Cai, **Yulin Wang**, Shiji Song, Gao Huang, Qi Tian
CondenseNet V2: Sparse Feature Reactivation for Deep Networks
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021

Industrial Applications

China Mobile Research Institute

Project – Efficient Inference of Deep Learning Models based on Dynamic Networks 2021 – Present

- Relevant papers: [1, 3, 8-11, 14, 16, 19, 20].
- *Detecting harmful online images/videos (e.g., violent, pornographic, or other adult-only contents):*
 - **Improving real throughput by 3.4x** without sacrificing accuracy or increasing inference cost.
- *Smart city scenario – real-time surveillance systems (e.g., detecting the violent behaviors of pedestrians):*
 - **Reducing real latency by 3.0x** on practical edge computing hardware without sacrificing accuracy.
- **Award for Frontier Exploration**, China Mobile Research Institute, 2023

Ministry of Science and Technology of China under Grant 2018AAA0101604

Sub-project – Data-efficient Machine Learning for Production Line Status Monitoring 2018 – 2023

- Relevant papers: [2, 13, 15, 21, 23].
- *Fault diagnosis for real production lines:*
 - Improving the generalization performance of deep networks significantly.

Selected Awards and Honors

- ByteDance Scholarship (字节跳动奖学金), ByteDance Ltd. 2022
(10 PhD students in China)
- Microsoft Research Asia Fellowship Award (“微软学者”奖学金), Microsoft Research Asia 2022
(12 PhD students in the Asia-Pacific region)
- “Li Yanda” Scholarship (李衍达励学基金), Tsinghua University 2022
(4 PhD students in the Department of Automation, Tsinghua University)
- Baidu Scholarship (百度奖学金), Baidu Inc. 2021
(10 PhD students worldwide)
- CCF-CV Outstanding Young Researcher Award (CCF-CV 学术新锐奖), China Computer Federation (CCF) 2021
(3 PhD/MS students in China)
- National Scholarship (国家奖学金), Ministry of Education of China 2021
(Top 2% in Tsinghua University)
- Outstanding Oral Presentation, Doctoral Students Forum, Tsinghua University 2021
- Travel Award, NeurIPS 2019
- “Shen Yuan” Medal (沈元奖章), Beihang University 2018
(Top 10 of 18,000+ undergraduate students in Beihang University)
- National Scholarship (国家奖学金), Ministry of Education of China 2018
(Top 2% in Beihang University)
- National Scholarship (国家奖学金), Ministry of Education of China 2017
(Top 2% in Beihang University)
- “Gong Xin” Innovation Scholarship (工信部创新奖学金), Ministry of Industry and Information Technology of China 2017
(Top 1/231 in Beihang University)
- First Prize, “Zhou Peiyuan” Mechanics Competition for Undergraduate Students (全国周培源大学生力学竞赛一等奖) 2017
(Top 0.3%)
- First Prize, National Undergraduate Mathematical Contest in Modeling (高教社杯全国大学生数学建模竞赛一等奖) 2017
(Top 0.2%)
- Scholarship for Outstanding Academic Performance, Beihang University 2016 – 2019
(Top 5% in Beihang University)

Academic Service

- Reviewer for TPAMI, IJCV, TCYB, TNNLS, TCSVT, Pattern Recognition, TMLR, ...
- Reviewer for ICML, NeurIPS, ICLR, CVPR, ICCV, ECCV, AAAI, ...
- **Outstanding Reviewer**, CVPR, 2021
- Co-sponsor of the Special Interest Group on Dynamic Neural Networks, Beijing Academy of Artificial Intelligence (BAAI).
 - <https://littlepure2333.github.io/dynamic-neural-network>
 - Core members include more than 20 researchers from 8 universities. We have organized more than 30 academic reports and tutorials. The cumulative audience has exceeded 1,000.

Invited Talks and Presentations

- 2023.02, School of Automation, Beijing Institute of Technology, Vision Transformers Meet Dynamic Inference
- 2021.12, PRCV 2021, Dynamic Deep Networks for Reducing Spatial Redundancy
- 2021.10, School of Computer Science, Fudan University, Dynamic Deep Networks for Reducing Spatial Redundancy
- 2021.09, Aibee (invited by Yuanqing Lin), Semantic Data Augmentation
- 2021.06, AI Time, Locally Supervised Deep Learning
- 2021.04, Beijing Academy of Artificial Intelligence, Dynamic Image/Video Recognition
- 2021.03, ByteDance Ltd., Semantic Data Augmentation
- 2020.11, Qingyuan Seminar, Glance and Focus Networks
- 2020.06, Huawei Technologies Ltd., Glance and Focus Networks
- 2019.10, School of Computer Science and Engineering, Beihang University, Semantic Data Augmentation